UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,438	03/12/2004	Ki-Hung Lee	AB-1354 US	6225

7590   05/02/2006

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EXAMINER
CALEY, MICHAEL H

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/799,438	LEE ET AL.
	Examiner	Art Unit	
	Michael H. Caley	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>08 February 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>2-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>2-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>12 March 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____ .

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37·CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 2, 4, 5, 6, 8, 9, and 12-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/469,197 in view of Hirosue et al. (U.S. Patent No. 6,504,581 "Hirosue"). This is a provisional obviousness-type double patenting rejection.

Claims 1-5 of 10/469,197 disclose the proposed features except for the method as using a random number generator. Hirosue teaches a random number generator function for randomly placing the exposed areas for each shot. Hirosue teaches an individual number as generated corresponding to the position of a unit area within the row (Column 5 line 51 – Column 6 line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the positions of the light-exposed unit areas in each row or column by a random number generator such that each generated random number corresponds to the position of a unit area within each row or column. Hazama teaches a random configuration as effective to distribute the division pattern elements between shots so that the stitch areas are inconspicuous (Column 9 lines 40-45). One would have been motivated to use a random number generator to determine the positions of the light-exposed and light-blocked areas to ensure that the boundary areas between shot exposures are unnoticed.

Claims 3, 11, and 12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/469,197 in view of Hirosue et al. (U.S. Patent No. 6,504,581 "Hirosue") and in further view of Takasugi et al. (U.S. Patent No. 6,606,141 "Takasugi"). This is a provisional obviousness-type double patenting rejection.

Claims 1-5 of Application No. 10/469,197 fail to disclose the unit area NxM matrix as configured such that N/M or M/N is a natural number. Takasugi, however, teaches a stitch area (Figure 4 element 45, Figures 5A and 5B; Column 7 line 61 – Column 8 line 10) in which N/M equals 2 (20 units across, 10 down).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have configured the stitch unit area such that N/M is a natural number. One would have been motivated to choose such a stitch size as an engineering expediency such as to make the boundary region less conspicuous by broadening the graduation region.

Claims 5, 6, 8, 14, and 15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/469,197 in view of Hazama et al. (U.S. Patent No. 6,583,854 "Hazama"). This is a <u>provisional</u> obviousness-type double patenting rejection.

Claims 1-5 of Application No. 10/469,197 fail to disclose the domain defining member as comprising a cutout of the common electrode. Hazama, however, teaches electrodes located within the pixel area as division pattern elements (Figures 12A and 12B elements Ep4). Kim '953 teaches such electrodes as including common electrodes (Figures 2 and 3 element 23) having a cutout (element 19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a domain defining member to comprise a cutout of the common electrode. Hazama teaches multiple domain defining members in each pixel so as to further aid in making an inconspicuous stitch. Kim '953 teaches a cutout in the common electrode located within the pixel region to form a multi-domain effect to improve the contrast ratio of the display at inclined viewing angles (Column 6 lines 3-6).

Claims 10 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/469,197 in view of Hirosue and in further view of Edelkind et al. (U.S. Patent No. 5,987,483 "Edelkind").

Claims 1-5 of Application No. 10/469,197 fail to disclose the type of random number

generator. Edelkind, however, teaches a pseudorandom number generator as favorable over a

truly random number generator (Column 1 lines 46-54).

. It would have been obvious to one of ordinary skill in the art at the time the invention

was made to generate the random numbers from a pseudorandom number generator. One would

have been motivated to use a pseudorandom number generator to avoid the necessity of

specialized hardware for generating a truly random number (Column 1 line 45 – Column 2 line

6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 2, 4, 8, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Kim et al. (U.S. Patent No. 5,945,256 "Kim '256") in view of Hirosue et al. (U.S. Patent

No. 6,504,581 "Hirosue").

Regarding claims 2, 8, and 9, Kim '256 discloses a method of manufacturing a liquid

crystal display panel by a divisional exposure with a plurality of shots including first and second

shots adjacent to each other (Figure 4), the method comprising:

preparing a stitch area (Figures 4 and 5 elements 10 and 130) which is an overlapping

area of the first and the second shots at a boundary between the first shot and the second shot and

includes a plurality of unit areas (Figure 5), each unit area being light exposed or light-blocked in

the first and the second shots (Column 4 lines 38-42); and

determining the positions or the sizes of the light-exposed unit areas or the light-blocked

unit areas, the number of the light-exposed unit areas or the light-blocked unit areas gradually

decreasing or increasing along a direction for the first shot to the second shot (Figure 5; Column

4 line 54 – Column 5 line 2)

wherein the determination comprises:

a determined pitch of the unit areas (Column 4 lines 44-46);

a determined stitch area including a plurality of unit areas arranged in an NxM

matrix (Column 4 lines 46-53);

a determined number of light-exposed unit areas or light-blocked unit areas in

each row or in each column for the first and the second shots (Column 4 lines 54-64).

Kim '256 fails to disclose the step of determining positions of the light-exposed unit

areas or light-blocked unit areas in each row or in each column for the first and the second shots

using the random number generator, wherein each generated number corresponds to the position

of a unit area within each row or column. Kim '256, however, describes the shapes of the shot

portions at the boundary as arbitrary and that the light-blocked and light-exposed regions of each

shot as mixed at the boundary region, and without any type of mixing pattern (Figure 5; Column

4 lines 43-44, lines 64-67). Furthermore, Hirosue teaches a random number generator function

for randomly placing the exposed areas for each shot. Hirosue teaches an individual number as

generated corresponding to the position of a unit area within the row (Column 5 line 51 –

Column 6 line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to have determined the positions of the light-exposed unit areas in each row or column

by a random number generator such that each generated random number corresponds to the

position of a unit area within each row or column. Hazama teaches a random configuration as

effective to distribute the division pattern elements between shots so that the stitch areas are

inconspicuous (Column 9 lines 40-45). One would have been motivated to use a random number

generator to determine the positions of the light-exposed and light-blocked areas to ensure that

the boundary areas between shot exposures are unnoticed.

Regarding claims 4 and 13, Kim '256 discloses the unit area as including a pixel area, a

plurality of pixel areas, or a portion of a pixel area (Column 5 lines 12-14).

**Claims 3, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over
Kim '256 in view of Hirosue and in further view of Takasugi et al. (U.S. Patent No.
6,606,141 "Takasugi").**

Regarding claims 3 and 11, Kim '256 as modified by Hirosue fails to disclose the unit

area NxM matrix as configured such that N/M or M/N is a natural number. Takasugi, however,

teaches a stitch area (Figure 4 element 45, Figures 5A and 5B; Column 7 line 61 – Column 8 line

10) in which N/M equals 2 (20 units across, 10 down).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have configured the stitch unit area disclosed by Kim '256 such that N/M is a natural number. One would have been motivated to choose such a stitch size as an engineering expediency such as to make the boundary region less conspicuous by broadening the graduation region.

Regarding claim 12, Kim '256 as modified by Takasugi discloses the proposed shot direction and number of light-exposed areas for each column (Figure 5).

Claims 5, 6, 8, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim '256 in view of Hazama et al. (U.S. Patent No. 6,583,854 "Hazama").

Regarding claims 5, 8, and 14, Kim '256 discloses each pixel area as comprising two unit areas (Column 5 lines 11-13) Kim '256 fails to disclose the pixel area as provided with a domain defining member disposed between adjacent unit areas in which positions or sizes of the light-exposed unit areas or the light-blocked unit areas are determined by a random number generator. Hazama, however, teaches such a unit area (Figures 9-12) with a domain defining member (any of elements ep1-ep4) disposed between adjacent unit areas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the unit areas and domain defining members as taught by Hazama in the display device manufacturing method disclosed by Kim '256. One would have been motivated to form the unit areas and domain defining members accordingly so that individual components in each pixel may be randomized in individual and differing configurations to

further aid in making an inconspicuous stitch (Column 20 lines 5-14). Any of elements ep1-ep4

may be defined as a domain defining member. Such elements define boundaries between unit

areas as seen in Figures 9A-12B.

Regarding claims 6 and 15, Kim '256 fails to disclose a boundary line between adjacent

unit areas as extending parallel to the gate lines. Hazama, however, teaches such a unit area with

a boundary line between adjacent unit areas as extending parallel to the gate lines (Figures 9-12).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to have formed the unit areas and domain defining members as taught by Hazama in

the display device manufacturing method disclosed by Kim '256. One would have been

motivated to form the unit areas and domain defining members accordingly so that individual

components in each pixel may be randomized in individual and differing configurations to

further aid in making an inconspicuous stitch (Column 20 lines 5-14).

Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kim '256 in view of Hazama and in further view of Kim et al. (U.S. Patent No. 6,100,953

"Kim '953").

Kim '256 as modified by Hazama fails to disclose fails to disclose the domain defining

member as comprising a cutout of the common electrode. Hazama, however, teaches electrodes

located within the pixel area as division pattern elements (Figures 12A and 12B elements Ep4).

Kim '953 teaches such electrodes as including common electrodes (Figures 2 and 3 element 23)

having a cutout (element 19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a domain defining member to comprise a cutout of the common electrode. Hazama teaches multiple domain defining members in each pixel so as to further aid in making an inconspicuous stitch. Kim '953 teaches a cutout in the common electrode located within the pixel region to form a multi-domain effect to improve the contrast ratio of the display at inclined viewing angles (Column 6 lines 3-6).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim '256 in view of Hirosue and in further view of Edelkind et al. (U.S. Patent No. 5,987,483 "Edelkind").

Kim '256 as modified by Hirouse fails to disclose the type of random number generator. Edelkind, however, teaches a pseudorandom number generator as favorable over a truly random number generator (Column 1 lines 46-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to generate the random numbers from a pseudorandom number generator. One would have been motivated to use a pseudorandom number generator to avoid the necessity of specialized hardware for generating a truly random number (Column 1 line 45 – Column 2 line 6).

Response to Arguments

Applicant's arguments with respect to claims 2-16 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286.

The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Robert Kim can be reached on (571) 272-2293.. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael H. Caley
May 1, 2006
mhc

ANDREW SCHECHTER
PRIMARY EXAMINER